



## PATENT ABSTRACTS OF JAPAN

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## (57) Abstract:

**PURPOSE:** To simplify the structure and manufacturing process, stabilize the quality, and reduce the cost of product by detecting an angle speed on the basis of the fluctuation of the tensile stress and compression stress caused in the longitudinal direction of a piezoelectric oscillator having a beam structure by the Coriolis force by the rotation and vibration of the oscillator.

**CONSTITUTION:** The drive signal corresponding to the natural frequency of an oscillator 101 oscillated from a sine-wave transmitter 301 is amplified by an AC amplifier 302 and applied to electrode parts 108, 109. The electrode parts 108, 109 output signals corresponding to the deflection displacement of the oscillator 101. A differential amplifier 303 determines the signal voltage difference from the electrode parts 106, 107 as a signal corresponding to the amplitude of natural vibration of the oscillator 101. A synchronizer 304 synchronously detects the signal of the amplifier 303 and outputs the result to a divider 309. An adder 306 similarly determines the sum of the signal voltages followed by synchronous detection, and outputs the result to the divider 309. Since each speed is thus detected on the basis of the tensile and compression

stresses of the oscillator 101, a simple structure, a simple manufacturing process and a stable quality can be ensured.

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